

## CLAIMS

- 1 1. A method of applying syntactic foam insulation to a length of pipe, said method comprising  
2 the steps of:  
3 co-extruding an inner syntactic foam insulator and an outer protective cover around the  
4 length of pipe; and  
5 rapidly solidifying said protective cover to retain said syntactic foam insulator in a desired  
6 shape about the length of pipe.

1 2. The method of claim 1, wherein said protective cover comprises a thermoplastic material.

1 3. The method of claim 1, wherein said protective cover comprises a thermosetting material.

1 4. The method of claim 1, wherein said step of rapidly solidifying comprises the step of  
2 bringing said protective cover in contact with water to cool said protective cover.

1 5. The method of claim 2, wherein said step of rapidly solidifying comprises the step of  
2 passing the coated length of pipe through a liquid bath to cool said protective cover.

1 6. The method of claim 4, wherein said protective cover comprises a thermoplastic.

1 7. The method of claim 5, wherein said protective cover comprises a thermosetting material  
2 and said step of rapidly solidifying includes a step of applying heat to said thermosetting material  
3 to solidify said thermosetting material.

1 8. The method of claim 2, wherein said step of rapidly solidifying comprises the step of air  
2 cooling said thermoplastic material.

Sub 1 9. A method of forming an insulating product, said method comprising the steps of:  
2 co-extruding an inner syntactic foam insulator and an outer protective cover; and  
3 rapidly solidifying said protective cover.

Sub 1 10. The method of claim 9, wherein said outer protective cover is a thermoplastic and said step  
2 of rapidly solidifying comprises the step of cooling said cover with a liquid coolant.

1 11. The method of claim 9, wherein said outer protective cover is a thermosetting material and  
2 said step of rapidly solidifying comprises the step of applying heat to said thermosetting material.

Sub 1 12. The method of claim 9, wherein said outer protective cover is a thermoplastic and said step  
2 of rapidly solidifying comprises the step of air cooling said cover.

1 13. An extruder for forming an insulating material, comprising:  
2 a first inlet that receives a syntactic foam mixture;

3 a second inlet that receives a molten protective cover;

4 a first die through which said syntactic foam mixture exits to provide extruded syntactic  
5 foam extrudate; and

6 a second die that cooperates with said first die to coextrude said molten protective cover  
7 over said extruded syntactic foam extrudate.

1 14. The extruder of claim 13, wherein said extruder further comprises a third inlet through  
2 which a length of pipe enters the extruder, wherein said first and second dies coextrude said  
3 syntactic foam extrudate and said protective cover extrudate over said inner length of pipe.

1 15. The extruder of claim 12, further comprises:

2 means for rapidly solidifying said protective cover extrudate following its extrusion over  
3 said syntactic foam.

1 16. The extruder of claim 14, wherein said protective cover extrudate comprises a  
2 thermoplastic material and said means for rapidly solidifying said protective cover comprises  
3 means for providing a liquid coolant to rapidly solidify said protective cover.

1 17. The extruder of claim 14, wherein said protective cover extrudate comprises a  
2 thermosetting material and said means for rapidly solidifying said protective cover comprises a  
3 heat source to rapidly solidify said protective cover.